

Lightning Protection for HCX5000

Tech Support has received numerous calls regarding lightning protection for later version 16LIF printed circuit boards. After much review, both here in our labs and those in Japan, we have reached some conclusions regarding the newer versions of the 16LIF line cards. While the new 16LIFH cards meet the same design specifications as the earlier versions, voltage tolerances on the low end have changed. The technical document below lists voltage tolerances for the 16LIFH as well as other PCB's. Based on these findings, as well as discussions with ONEAC, it is our recommendation that the ONEAC model 5SAP195 be used to combat circuit board damage in high lightning prone areas.

Hitachi Telecom USA, Inc. recommends that all HCX5000 circuits be provided with the protection devices (primary arrestors) that meet the specifications below:

Table 1 Specification Requirements of Lightening Protection Device

#	Item	Protector for the analog line (ex. 8DID, 8COT, 8/16LIF)	Protector for the digital line (ex. DTC, PRI, DSL, DLC)	Note
1	Limited voltage	max. 240 V at 10 x 1000 us, 3 kV, 100ohm	max. 320 V at 10 x 1000 us, 5 kV, 100 ohm	Varister / Zenor characteristics
2	Limited current	max. 0.5 s at DC 640 mA	max. 0.5 s at DC 640 mA	Fuse characteristics
3	No-operation voltage	DC 135 V at leak less than 1 mA	DC 135 V at leak less than 1 mA	Varister / Zenor / gas tube characteristics
4	No-operation current	DC/AC 100 mA	DC/AC 150 mA	Fuse characteristics
5	Insertion loss	max. 0.2 dB at 800Hz, 600 ohm	max. 0.2 dB at 800Hz, 600 ohm	
6	Imbalance about earth	max. 10 %	-	
7	Capacitance to earth	-	max. 250 pF at 100 kHz	To keep pulse shape within standard mask.
8	Capacitance Difference between A and B wire	-	max. 15 pF	